

Mannesmann VDO AG

Kruppstraße 105
60388 Frankfurt
VF42RS/KE-tp

5

4648

I CLAIM
Patent claims

Sub
as

09528922-073100

- 10 1. A color head-up display, in particular for vehicles, in which the light from a light source (2) is transmitted through an at least partially light-transmitting display (3) and can be projected onto a windshield, **wherein** a multiplicity of red, blue and green light-emitting diodes (10 - 12) are arranged
- 15 without packaging on a common support (16, 17, 19), and wherein a heat-dissipating device (19) for cooling the light-emitting diodes is present.
- 20 2. The color head-up display as claimed in claim 1, **wherein** the multiplicity of light-emitting diodes (10, 11, 12) is arranged in the form of a compact array.
- 25 3. The color head-up display as claimed in claim 2, **wherein** the compact array is configured in the form of a matrix.
- 30 4. The color head-up display as claimed in one of the preceding claims, **wherein** the number of light-emitting diodes of one color is adapted to the spectral sensitivity of the eye and to the spectral efficiency of the diodes.
- 35 5. The color head-up display as claimed in one of the preceding claims, **wherein** the compact array has a largely round form.
6. The color head-up display as claimed in one of the preceding claims, **wherein** the individual light-emitting diodes (10, 11, 12) are configured as chip pads fitted on a metallic support material array (9).
7. The color head-up display as claimed in claim 6, **wherein** in each case at least one bonding wire (15)

is connected to the chip pad (10, 11, 12) and to the support material array (9).

8. The color head-up display as claimed in one of the preceding claims, **wherein** a plurality of light-emitting diodes (10, 11, 12) are connected in series.

9. The color head-up display as claimed in claim 8, **wherein** a plurality of light-emitting diodes (10, 11, 12) of one color are connected in series.

10. The color head-up display as claimed in one of the preceding claims, **wherein** the at least partially light-transmitting display (3) is configured as a liquid crystal display.

11. The color head-up display as claimed in claim 10, **wherein** the display (3) is a color liquid crystal display, and wherein the light source (2) simultaneously emits red, green and blue light.

12. The color head-up display as claimed in claim 10, **wherein** the liquid crystal display (3) is a monochrome liquid crystal display, and wherein the individual colors of the light-emitting diodes can be successively switched on and off in a rapid sequence.

13. The color head-up display as claimed in one of the preceding claims, **wherein** a condenser lens (7) is arranged between the light source (2) and the display (3).

14. The color head-up display as claimed in one of the preceding claims, **wherein** light from the light-emitting diode (10 - 12) is reflected by means of one or a plurality of mirrors and is transmitted through the display (3).

15. The color head-up display as claimed in one of the preceding claims, **wherein** it has one or a plurality of displays (3) and a plurality of light sources (2).

Add
BP

007E20-22682960